

Remarks/Arugments

Claims 8 -11 and 13 have been rejected under 35 U.S.C. Sec. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It was unclear to the Examiner which hydrocracking steps were being referred to in these claims. Claims 1 and 3-14 have been amended to improve their clarity. Claim 2 has been cancelled. The subject matter on claim 2 has been incorporated into claim 1.

Claim 8-11 and 13 further describe the processes first recited in claims 1 and 3. There are only two hydrocracking stages recited in the claims of this invention, but there are variations in the steps in between them.

Claims 1 and 7 have been rejected under 35 U.S.C. Sec. 103(a) as being unpatentable over Chu et al (hereinafter Chu) in view of Hilfman et al (hereinafter Hilfman). This rejection has been obviated by the incorporation of claim 2 into claim 1. Chu, as the examiner notes, does not disclose the presence of two hydrocracking reaction zones, as claim 1 now recites. Hilfman was added for its teaching of hydrotreating of light gas oils.

The examiner alleges that the hydrodewaxing step of Chu is a shape selective hydrocracking step and is therefore equivalent to the hydrocracking step originally recited in claim 1. This is inaccurate. Hydrodewaxing, hydrocracking, hydrotreating and hydrofinishing are all **hydroprocessing** procedures. They vary primarily in the types of feeds employed, the severity of the conditions used and the types of catalysts employed. Chu is limited to dewaxing with a shape-selective zeolite, such as intermediate pore zeolites. Zeolite beta, a large pore zeolite is also disclosed as suitable. Details are not provided concerning the silica/alumina ratio or alpha value of zeolite beta suitable for use in Chu. A large pore zeolite with a high silica/alumina ratio and low alpha is generally more suitable for isomerization than shape-

selective separation. The feeds of Chu comprise a substantial amount of long straight chain hydrocarbons(col.1, lines 15-16). Although some cracking occurs in shape selective dewaxing, it is generally desirable to minimize cracking in order to preserve yield.

The VGO's that are hydrocracked in the instant invention are derived from the crude desulfurization unit. There is no indication in the instant invention that these VGO's are particularly waxy, as Chu suggests for its feeds. The VGO from the crude fractionator of the instant invention must be further treated in order to remove large concentrations of sulfur. The amount of cracking is dependent upon the reference temperature employed and is generally in the range from 10 to 20%(see page 12, lines 1-16). The instant invention may employ amorphous catalysts (which Chu does not) as well as zeolite Y or USY. There is a difference, therefore in the catalysts employed in the shape-selective dewaxing step of Chu and the hydrocracking step of the instant invention.

The Examiner adds Claussen et al (hereinafter Claussen) in its rejection of claim 2, which has now been incorporated into claim1, combining three references. The Examiner indicates that Claussen teaches a two stage hydrocracking process in which a portion of the effluent from the second conversion zone is recycled to the second conversion zone. This is **not** what Claussen teaches. Claim 2, as well as the Figure, and col.7, line 54-63, all disclose that the effluent of claim 2 is combined with the effluent of claim 1 and is passed to separation facilities. Therefore the effluent of the second hydrocracking stage is not recycled directly to the second stage, as disclosed in the instant invention.

The Examiner employs three references to reject the independent claim in its current form, and adds at least one additional reference to reject claims 3-14. In the case of claims 9-11, 5 references are used in Cash et al (hereinafter Cash) is added in the rejection of claims 3-6 to demonstrate a multiplicity of

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layered catalyst beds. It is not a two stage hydrocracking process such as that of the instant invention. The instant invention does not contemplate the addition of a lighter hydrocarbon fraction between the first and second zones. The second stage of Cash employs hydrotreating, not hydrocracking. The Cash application discloses a "split feed" flow scheme.

Kalnes et al (hereinafter Kalnes) is added in rejections of Claims 8,13, and 9-11 for its teaching of a hot hydrogen stripper.

In the rejection of claim 12, Van Helden et al (hereinafter Van Helden) has been added to the rejection of claim 1 because of its teaching of atmospheric and vacuum distillation units to produce fractions. In Van Helden however, these distillation units are found downstream of the hydrocracker, not following the desulfurization unit, as in the instant invention.

In his rejections of the claims as they now stand, the Examiner must combine at least three references and in some cases as many five references. The Examiner is to consider the process scheme of this invention **as a whole**, and not cobble together rejections from bits and pieces of different patents.

It is the applicants' position that the claims, as now amended are in condition for allowance. We respectfully request that this application be passed to allowance.

Respectfully submitted,



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